Opisthotonos Fetalis in Breech Presentation

Report of a Case with Bilateral Congenital Posterior Dislocation of the Tibiae

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THE management of breech presentation continues to be a major obstetrical responsibility. According to Stander[9] the uncorrected gross fetal mortality in breech presentation is about 20 per cent. Prematurity and congenital anomalies contribute significant factors to the total mortality. Therefore, it would seem worth while to record certain observations which might contribute to our appreciation of the natural history of breech presentation.

According to Tompkins[11] the so-called "classical factors," namely, contracted pelvis, placenta praevia, pelvic tumors, and fetal malformations, account for only one-sixth of the total breech births. The same author suggests that any condition which will inhibit effectual movements of the fetus in utero (such as dysplasia of the hips, or hydrocephalus) may cause persistent breech presentation by preventing spontaneous cephalic version. Vartan,[12] from his study of 969 cases of breech delivery in five London hospitals, concluded that extended legs is the chief cause for failure of spontaneous cephalic version to occur as term approaches.

Stein[10] calls attention to the difference in prognosis between cases of complete breech presentation (with the fetus well flexed) and the incomplete varities of breech presentation (with the fetus in attitudes of extension or deflexion). According to Stein's experience delivery spontaneously or with minimal assistance may be awaited if the breech is well flexed, whereas dystocia is to be anticipated in those instances where there is extension of the fetus. Stein, therefore, recommends that clinical evaluation be supplemented by careful roentgenography shortly before term.

The following case is presented for several reasons: (1) It is the first instance of transient opisthotonos in breech presentation that has been reported, as far as the author can ascertain; (2) The persistent breech presentation was surmised after delivery to have been due to the inability of the fetus to enjoy free movement in utero, due to a melange of congenital anomalies involving both lower extremities; and, (3) The anomalies in themselves are unique. No similar instance of bilateral congenital posterior dislocation of the tibiae, with associated congenital absence of the epiphyseal centers for the distal ends of the femora and proximal ends of the tibiae, could be found in the literature.

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CASE REPORT

A 22-year-old white primigravida was first seen on Oct. 26, 1945. The expected date of confinement was Feb. 23, 1946. The patient was robust and had always enjoyed excellent health. The family history is of interest inasmuch as the husband's father was said to have been born with a congenital anomaly of both lower extremities, for which amputation at the mid-thigh was carried out in childhood.

The patient experienced no acute exanthemata during any part of the pregnancy. Findings on general physical examination were within normal limits. Pelvic mensuration disclosed a normal gynecoid pelvis. Tests of the blood for syphilis were negative. The Rh-factor was positive. There was no anemia, and urinalyses were consistently negative.

Pregnancy progressed normally. Breech presentation was first diagnosed at six and one-half months' gestation, and subsequent examinations every two weeks disclosed a persistence of the breech presentation. The position, Right Sacro-Posterior, was established one month from term and continued so. In the seventh and eighth months several attempts at cephalic version by external manipulation were unsuccessful.

Roentgenograms taken two weeks from term (Figure 1) showed a normal gynecoid pelvis, with a single fetus in breech presentation. The attitude of the fetus was that of opisthotonos, with the head arched against the back, and the anterior arm extended toward the pelvic inlet. Because of the marked hyperextension of the fetal skeleton, the question was raised as to whether or not elective cesarean section might not be in order. To help in reaching a decision, new roentgenograms were taken. The film (Figure 2) taken four days later than the first, revealed a striking change: the fetus had spontaneously corrected the attitude of opisthotonos, and had assumed a habitus of flexion. Even the anterior arm, which previously had been pendent in the pelvis, had assumed a flexed position across the chest. Comparison of the two films showed that the distortion of the head shadow in Figure 1 (taken with the patient in the dorsal supine position) had been corrected in the subsequent film taken with the patient in the prone position.

Labor was induced with castor oil on Mar. 6, 1946. After a first stage of two hours and a second stage of 20 minutes, delivery was easily completed, after the single footling had been converted into a double footling. The position was Right Sacro-Posterior. Both shoulders were delivered as anterior shoulders, and the after-coming head was delivered after the method of Wiegand-Martin. Adequate medio-lateral episiotomy facilitated the delivery.

The infant was a viable male. Birth-weight was six pounds, eight ounces. Respirations were not delayed; color and circulation were normal. General physical examination of the baby revealed no abnormalities, except for the lower extremities. Both knees were held in flexion with posterior dislocation of the lower legs, so that the distal end of the femur projected beyond the knee-joint on either side (Figure 3). Moreover, there was bilateral clubfoot. A roentgenogram

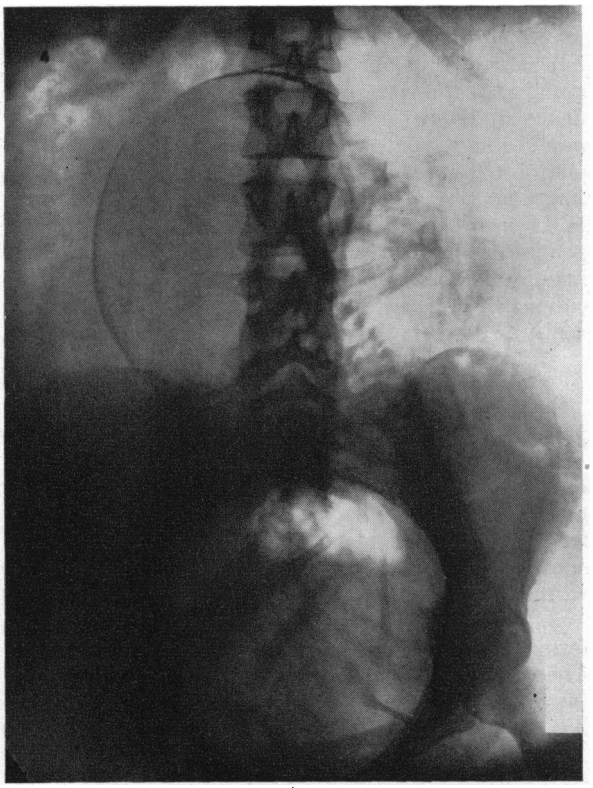

Figure 1.—Breech presentation in attitude of opisthotonos. Note extreme hyperextension of cervicodorsal spine. The size of the fetal head is magnified, due to the exposure having been taken with the patient in the supine position.

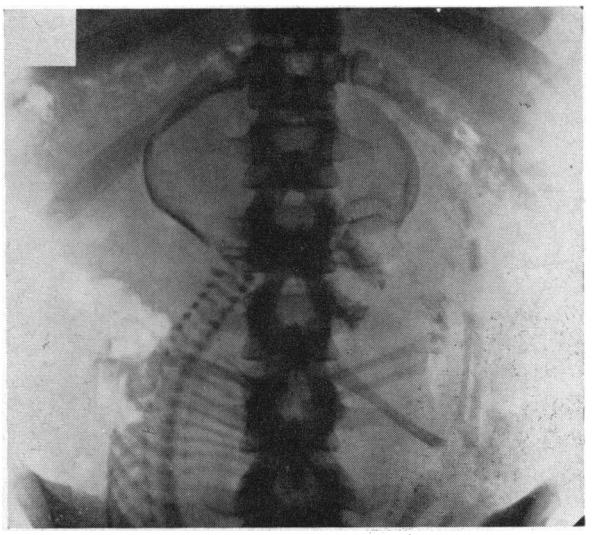

Figure 2.—Roentgenogram taken four days after Figure 1 shows the fetal attitude of opisthotonos to have changed to one of flexion. The cervicodorsal spine is now well flexed, and the arms, previously extended, are now folded across the chest. The magnification of the head is diminished owing to patient being prone.

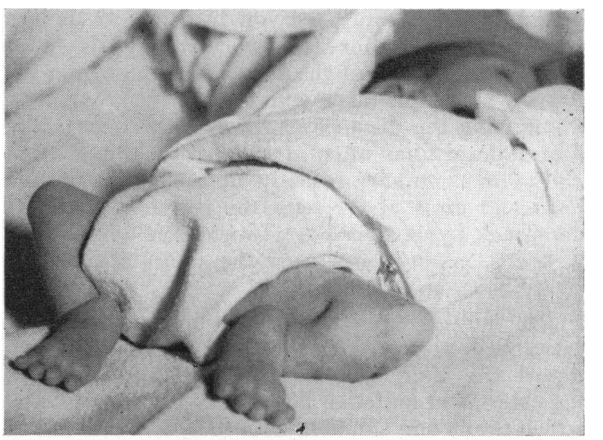

Figure 3.—Photograph of newly born infant. Note that the knees are held in flexion with posterior dislocation of the lower legs, so that the distal end of the femur projects beyond the knee-joint. The degree of club-foot deformity is extreme.

of the infant (Figure 4) disclosed: (1) posterior dislocation of the tibiae; (2) absent epiphyses for the lower ends of the femora and upper ends of the tibiae; (3) fibulae absent; (4) only one tarsal bone, the calcaneus, present; the talus and cuboid (which should be present at birth) not demonstrated; (5) on the right foot only four metatarsals and phalanges demonstrated; and (6) six lumbar vertebrae. The infant has gained weight normally, and has developed naturally in all respects except for failure of the lower extremities to grow. There has been no evidence of impaired mentality. The infant has been under competent orthopedic supervision since birth.

The puerperium was uncomplicated and without morbidity. Post-partum examination showed a satisfactory recovery: the episiotomy was healed; cervix was clean and posterior in position; the corpus had involuted naturally, and the adnexa were normal.

DISCUSSION

The case reported above would lend support to the theory championed by Tompkins[11] and Vartan[12] that fetal conditions which prevent free motion in utero predispose to persistent breech presentation. It is obvious that the severe orthopedic anomalies of the lower extremities present in the case under discussion readily precluded the freedom of motion in utero which usually brings about spontaneous version to a cephalic presentation.

Deflexion attitudes in breech presentation are not uncommon. However, opisthotonos is an extreme degree of hyperextension even in breech presentation. Kobak[4] has recently reported an instance of opisthotonos fetalis occurring in association with a face presentation. Opisthotonos in an infant presenting transversely has been reported by Falls.[2] It is a unique experience to record roentgenographically a breech presentation in an attitude of opisthotonos, and to have the extreme hyperextension spontaneously change to a habitus of full flexion several days later. The assumption of an attitude of flexion decisively changed the prognosis, and gave reasonable assurance of a successful pelvic delivery. Had the hyperextension persisted on subsequent radiograms, abdominal delivery may well have been the method of choice.

The plan for delivery in breech presentation should not be a haphazard affair. On the basis of

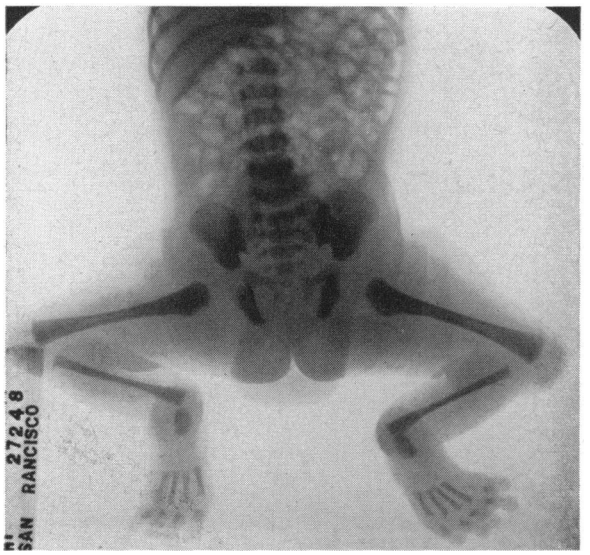

Figure 4.—Roentgenogram of newly born infant. The bilateral posterior dislocation of the tibiae is pronounced.

careful clinical examination, supplemented whenever possible by precise roentgen pelvimetry, one must determine, preferably two or three weeks before term, the prospects for safe pelvic delivery. To obtain minimal distortion of the fetal head one of the exposures should be taken with the patient prone, thus minimizing the distance of the fetal head from the film. Lateral films often are very revealing. Potter[7] and co-workers have recently advocated making the head and arms of the fetus the roentgen target. A persistent hyperextension attitude, including opisthotonos, might well suggest the advisability of delivery by cesarean section.

The multiple congenital anomalies of the lower extremities presented by the infant described in this report are unique. It is of particular interest that the paternal grandfather possibly had similar defects, which resulted in amputation of the lower extremities in childhood. Hussein[3] considers mesenchymal defects the etiologic factor in multiple anomalies. It is probable that the defects result from deficient growth potential in the precartilage mesenchyme. In speaking of congenital dislocations of the knee, Campbell[1] states that the "tibia is practically always displaced anteriorly and often there is an associated genu recurvatum." In the case reported herein, not only is the posterior displacement of the tibiae unusual, but the absence of the epiphyseal ossification centers of the distal femora and proximal tibiae is noteworthy. These centers are usually present at birth. According to Patten[6] these ossification centers may appear between the sixth or seventh months of intrauterine life and the third or fourth postnatal months. In the instance reported there was no evidence of these centers even by the sixth postnatal month. Some years ago Murphy[5] reported the association of subluxation of the knee-joint and familial finger contracture; the knee-joint anomaly occurred in 11 members of the particular family over three generations. Either knee was affected, and the subluxation usually became manifest at puberty. The subject of congenital dislocation of the knee has recently been reviewed by Provenzano.[8]

SUMMARY

1. An instance of transient opisthotonos in breech presentation has been presented.

2. The combination of several rare congenital anomalies of the lower extremities, including posterior dislocation of the tibiae, seemingly prevented normal free movement in utero and thereby precluded the spontaneous cephalic version which usually occurs in the latter months of pregnancy.

3. The advisability of careful x-ray study prior to term in breech presentation has been emphasized. The advantage of repeating the roentgen study in an instance of marked hyperextension (opisthotonos) has been shown.

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